BBU Design of Linear Induction Accelerator Cells for Radiography Application,

C.C. SHANG, Y.-J. CHEN, T.L. HOUCK, G.J. CAPORASO, and N.E. MOLAU, *Lawrence Livermore National Laboratory,* and J. FOCKLER, PSI. There is an ongoing effort to develop accelerating modules for high-current electron accelerators for advanced radiography application. Accelerating modules with low beam-cavity coupling impedances along with gap designs with acceptable field stresses comprise a set of fundamental design criteria. In this paper, we examine improved cell designs which have been developed for accelerator application in several radiographic operating regimes. We will evaluate the interaction impedances, beam-breakup growth rates, and examine 3-D scattering effects in accelerating modules. We will also provide estimates of coupling through interesting insulators in accelerating gap designs.

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